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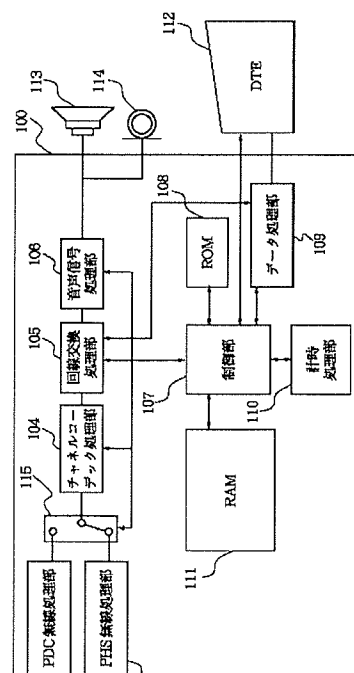
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(54) 【発明の名称】 無線通信装置

(57) 【要約】

【課題】 複数の無線通信システムのサービスが利用可能な通信装置の操作性を改善する。

【解決手段】 アプリケーションに応じて、PDC無線処理部102とPHS無線処理部103の一方を選択する。例えば、インターネットアクセスには、PHSを選択する。通話には、PDCを選択する。



## 【特許請求の範囲】

【請求項 1】 相異なる複数の無線通信システムのサービスが利用可能な無線通信装置において、アプリケーションに応じて前記複数の無線通信システムのうちのいずれかを選択する選択手段と、前記選択手段により選択された無線通信システムと通信する通信手段を有することを特徴とする無線通信装置。

【請求項 2】 請求項 1 記載の無線通信装置において、前記通信手段は、前記複数の無線通信システムのそれぞれに対する複数の通信手段からなることを特徴とする無線通信装置。

【請求項 3】 相異なる複数の無線通信システムのサービスを利用するための無線通信方法において、アプリケーションを識別し、アプリケーションに応じて前記複数の無線通信システムのうちのいずれかを選択することを特徴とする無線通信方法。

【請求項 4】 請求項 1 記載の無線通信方法において、前記複数の無線通信システムのそれぞれに対する複数の通信手段のいずれかを選択することを特徴とする無線通信方法。

【請求項 5】 コンピュータが、アプリケーションを識別する識別手段と、アプリケーションに応じて前記複数の無線通信システムのうちのいずれかを選択する選択手段として動作するためのプログラムを、コンピュータにより呼び出し可能に記憶した記憶媒体。

【請求項 6】 前記選択手段は、前記複数の無線通信システムのそれぞれに対する複数の通信手段のいずれかを選択することを特徴とする記憶媒体。

【請求項 7】 相異なる複数の無線通信システムのサービスが利用可能な無線通信装置において、送信データが画像を含んでいるか否かに応じて前記複数の無線通信システムのうちのいずれかを選択する選択手段と、前記選択手段により選択された無線通信システムと通信する通信手段を有することを特徴とする無線通信装置。

【請求項 8】 相異なる複数の無線通信システムのサービスを利用するための無線通信方法において、送信データが画像を含んでいるか否かを判断し、送信データが画像を含んでいるか否かに応じて前記複数の無線通信システムのうちのいずれかを選択することを特徴とする無線通信方法。

【請求項 9】 コンピュータが、送信データが画像を含んでいるか否かを判断する判断手段と、送信データが画像を含んでいるか否かに応じて前記複数の無線通信システムのうちのいずれかを選択する選択手

## 【発明の詳細な説明】

【0001】

【発明の属する技術分野】本発明は、複数の無線通信システムのサービスが利用可能な無線通信装置に関する。

【0002】

【従来の技術】従来の無線通信システムには、携帯電話機あるいは自動車電話等のセルラー方式等の利用可能なサービスエリアが広く、高速移動中でも通信が可能なタイプと、デジタルコードレス方式（PHS）等の、消費電力が小さく、公衆／自営の多モードでの通信が可能なタイプがある。

【0003】それぞれの長所および短所としてセルラー方式には、

長所：サービスエリア広い、高速移動中通信可能

短所：音質不十分、地下・建造物内利用不可、消費電力大、低速データ通信

デジタルコードレス方式には、

長所：通信料金低、地下利用可、音質クリア、消費電力小、高速データ通信

短所：サービスエリア狭い、高速移動中通信不可などがある。

【0004】利用者は、これらの長所、短所を考慮して、その利用したいサービスにあった端末を選んでいた。

【0005】

【発明が解決しようとする課題】しかしながら、上記従来例では、前述の通りセルラー方式あるいはデジタルコードレス方式の各無線移動通信システムにはそれぞれの長所と欠点がある。また今後 W-CDMA や CDMA-ONE などの新しい方式の端末も利用されることになり、利用者が利用形態に応じて各無線方式に対応した端末を携帯するのは、利用者にとっても不自由さを感じさせることとなる。

【0006】そこで本発明においては、前記複数の無線通信システムを利用でき、なるべく利用者の利用形態に即した無線通信システムを選択できる無線通信装置を提供することを目的とする。

【0007】

【課題を解決するための手段】本発明は、相異なる複数の無線通信システムのサービスが利用可能な無線通信装置において、アプリケーションと連動して前記複数の無線通信システムのうちのいずれかを選択する選択手段と、前記選択手段により選択された無線通信システムと通信する通信手段を有することを特徴とする。

【0008】

【発明の実施の形態】以下、本発明の実施の形態として、セルラー方式として携帯電話装置（以下、PDC という）またデジタルコードレス方式としてパーソナル

下、移動端末という)を説明する。

【0009】図1は、本実施の形態におけるPDCおよびPHSを媒体とした移動端末の構成を示すブロック図である。

【0010】この移動端末は、移動端末本体100と、アンテナ101、受話器113と、送話器114と、データ通信端末装置(DTE)112とを有する。

【0011】そして、移動端末本体100には、無線通信システムとしてPDCを選択した場合の送受信を行うPDC無線処理部102と、PHSを選択した場合の送受信を行なうPHS無線処理部103と、102および103のいずれかを選択するためのセレクト部115とを有する。

【0012】さらに、移動端末本体100には、送信データの変調および受信データの復調を行う変復調機能と、フレームの分解/組立等処理、誤り訂正処理、スクランブル処理および音声データの秘話処理等を行うチャネルコーデック処理部104と、音声・データなどの回線交換処理を行なう回線交換処理部105とを有する。

【0013】さらに、移動端末本体100には、音声データの圧縮符号化処理および伸長復号化を行う音声信号処理部106と、各部の制御を行う制御部107と、プログラムデータを記憶するROM108と、データ通信を行なう場合のデータ処理を行なうデータ処理部109と時計データを保持する計時処理部110と、各種データを記憶し保持するRAM111とを有する。

【0014】ROM108は、コンピュータである制御部107により読み出し可能な記憶媒体である。

【0015】図2は、本実施の形態における無線移動通信システム全体を示す概念図である。

【0016】200A～Bは移動端末を表し、201A～CはPHS基地局、202A～CはそれぞれPHS基地局201A～Cがカバーするエリアを表し、203はPDC基地局を表し、204はPDC基地局203がカバーするエリアを表す。

【0017】アプリケーションに応じた無線通信システムを選択する動作を説明する。

【0018】図3は、本実施の形態における移動端末のRAM111に保持しているアプリケーション毎の選択方式を示すテーブルである。そこで500はアプリケーション別無線通信システム選択状態を表すテーブルであり、501はアプリケーション種別を表すエリアであり、502はアプリケーションに応じた選択方式を表すエリアである。

【0019】次に、図4は、本実施の形態における移動端末の制御部107が動作するとき用いるROM108に記憶されたプログラムを表すフローチャートである。

したとする(S900)。

【0021】移動端末200Aの制御部107は、アプリケーションを起動し(S901)、現起動中のアプリケーション種別を識別し(S902)、次に、図3にあるアプリケーション別無線通信システム選択テーブル500を参照し無線通信システムを決定する(S903)。

【0022】選択状態がPDCであれば(S904)、制御部107は、セレクト115をPDC無線処理部102にし、PDCの動作開始準備を行ない(S905)、準備完了後待受処理を実行する(S908)。

【0023】また、選択方式がPDCでなければ、制御部107は、選択方式がPHSであるかどうかを判断し(S906)、PHSであれば、セレクト115をPHS無線処理部103にし、PHSの動作開始準備を行ない(S907)、準備完了後待受処理を実行する(S908)。

【0024】この様に、例えば、インターネットにアクセスする場合には、PHSを選択する。通話の場合は、PDCを選択する。

【0025】また、他の実施形態では、制御部107は、S902、S903、S904、S905において、テキストデータを通信するアプリケーションにおいて無線回線を接続する場合には、PDCを選択し、画像データを通信するアプリケーションにおいて無線回線を接続する場合には、PHSを選択する。

【0026】すなわち、起動されているアプリケーションが、テキストデータを通信するメールであれば、制御部107は、メール通信時には、PDC無線処理部102によりPDSのプロトコルにしたがって、PDC基地局203と通信する。

【0027】一方、起動されているアプリケーションが、画像データを含むデータを通信するアプリケーションであれば、制御部107は、画像データを含むデータを通信する時には、PHS無線処理部103によりPHSのプロトコルにしたがって、PHS基地局201Aと通信する。

【0028】また、更に他の実施の形態では、制御部107は、送信データが画像を含んでいるか否かを判断し、画像を含んでいれば、PHSを選択し、画像を含まないテキストデータであれば、PDCを選択する。

【0029】このように、移動端末は、アプリケーションに応じて自動で複数の無線移動通信システムの中から通信システムを選択することにより、利用者は、音声による通話、ペアラによるデータ通信などを意識せずに最適な通信を行なえるという効果がある。

【0030】また、無線通信媒体としてPHS・PDCを用いたが、DECT、CT2、PDC、IS-95、CDMA-one、W-CDMAなどの無線マルチメデ

## 【0031】

【発明の効果】以上説明したように、本発明によれば、相異なる複数の無線通信システムのサービスが利用可能な無線通信装置において、アプリケーションと連動して前記複数の無線通信システムのうちのいずれかを選択する選択手段と、前記選択手段により選択された無線通信システムと通信する通信手段を有することにより、複数の無線移動通信システムの長所および短所を双方に補完することができる。

## 【図面の簡単な説明】

【図1】 発明の実施の形態における無線通信装置のブロック図である。

【図2】 無線通信システム概念図である。

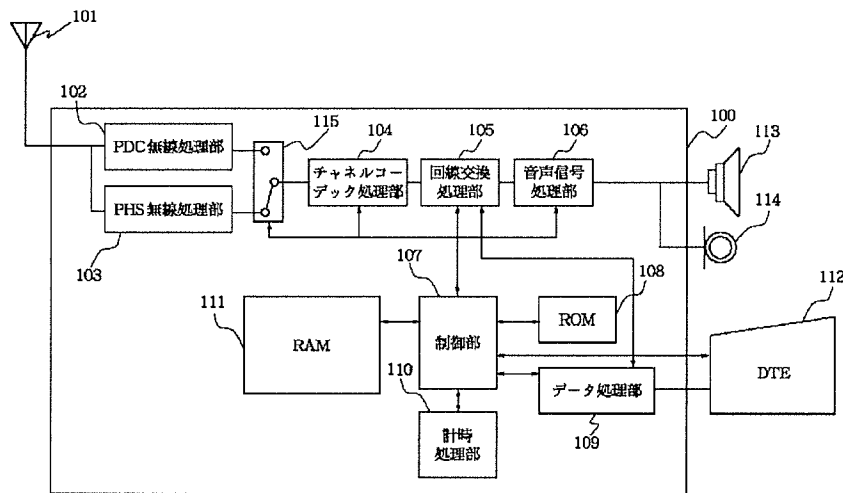
【図3】 実施の形態におけるアプリケーション別の無線通信システムのテーブルの図である。

【図4】 発明の実施の形態におけるフローチャート図である。

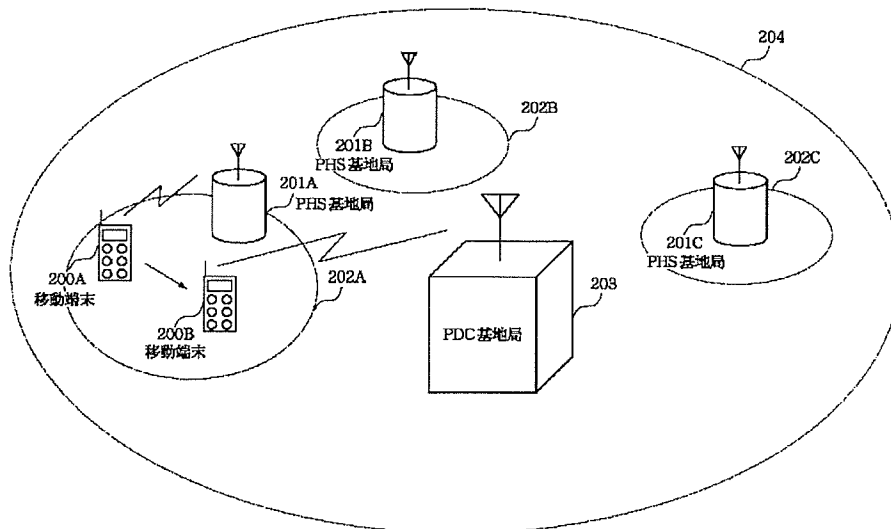
## 【符号の説明】

- 100 複合型無線通信装置
- 102 PDC無線処理部
- 103 PHS無線処理部
- 115 無線処理部セレクタ
- 201A-C PHS基地局
- 203 PDC基地局

【図1】



【図2】

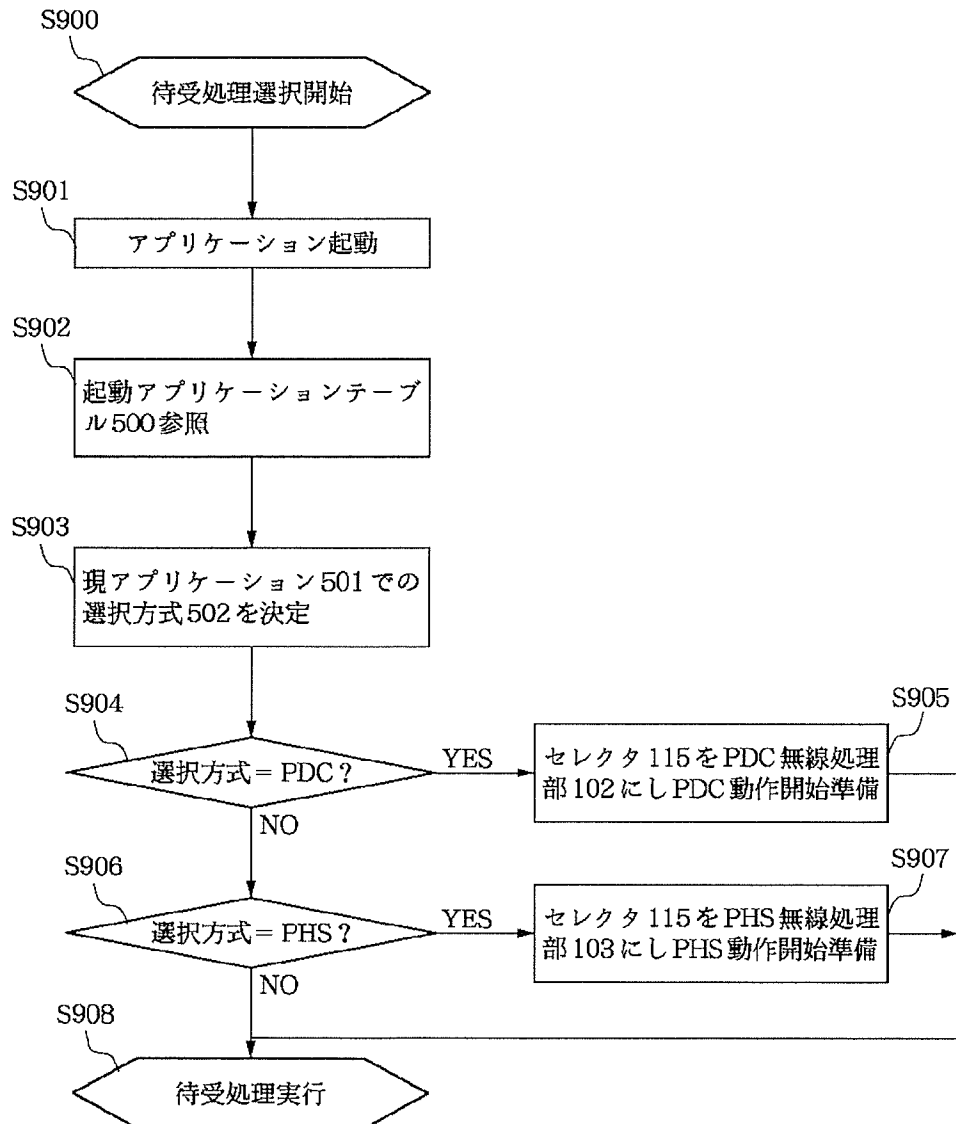


【図3】

501 起動アプリケーション	502 選択方式
ダイヤルボタン（通話）	PDC
電子メール	PHS
WWW アクセス	PHS
留守モード	PDC
顧客データ処理	PHS

500

【図4】



フロントページの続き

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5K061 AA09 BB00 CC45 GG09 JJ06  
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(71)Applicant : CANON INC

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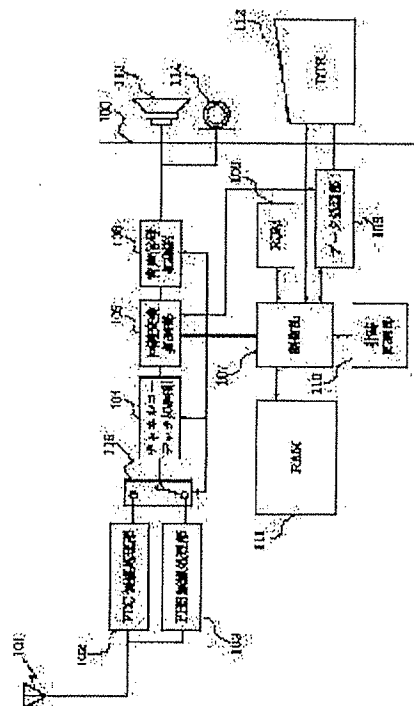
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## (54) RADIO COMMUNICATION DEVICE

### (57)Abstract:

**PROBLEM TO BE SOLVED:** To select a radio communication system matched a utility configuration of a user by providing a selecting means which is linked to an application and selects any one out of plural radio communication systems and a communicating means which communicates with the radio communication system selected by the selecting means.

**SOLUTION:** A mobile terminal main body 100 has a portable telephone (PDC) radio processing part 102 for performing transmission/reception in the case in which a PDC is selected as a radio communication system, a PHS radio processing part 103 for performing transmission/reception when a PHS is selected and a selector part 115 for selecting either of the radio processing parts 102 or 103. Moreover, the main body has a modulation/demodulation function which modulates transmission data and demodulates reception data, a channel codec processing part 104 for performing disassemble/assemble processing of a frame, error correction processing, scramble processing, secret talk processing of sound data and the like, and a circuit exchange processing part 105 for performing circuit exchange processing of sound/data or the like.



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**Theme code (reference)**

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5K027

5K061

5K067

5K101

**F-term (reference)**

5K011 BA10 DA00 DA26 JA00 JA01 KA12

5K027 AA11 CC08

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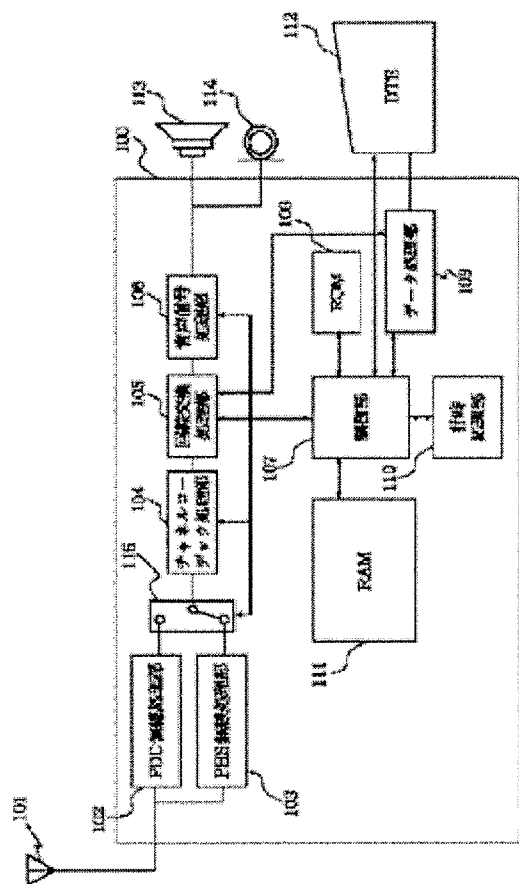
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5K101 LL12 QQ11

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**Abstract:**

PROBLEM TO BE SOLVED: To select a radio communication system matched a utility configuration of a user by providing a selecting means which is linked to an application and selects any one out of plural radio communication systems and a communicating means which communicates with the radio communication system selected by the selecting means. SOLUTION: A mobile terminal main body 100 has a portable telephone (PDC) radio processing part 102 for performing transmission/reception in the case in which a PDC is selected as a radio communication system, a PHS radio processing part 103 for performing transmission/reception when a PHS is selected and a selector part 115 for selecting either of the radio processing parts 102 or 103. Moreover, the main body has a modulation/demodulation function which modulates transmission data and demodulates reception data, a channel codec processing part 104 for performing disassemble/assemble processing of a frame, error correction processing, scramble processing, secret talk processing of sound data and the like, and a circuit exchange processing part 105 for performing circuit exchange processing of sound/data or the like.

**JPO Machine translation abstract:****(57) Abstract**

**SUBJECT** The operativity of a communication apparatus with available service of two or more radio communications systems is improved.

**Means for Solution** According to application, one side of the PDC wireless processing section 102 and the PHS wireless processing section 103 is chosen. For example, PHS is chosen as an Internet access. PDC is chosen as a telephone call.

**Claim(s)**

**Claim 1** Radio communication equipment characterized by comprising the following with available service of two or more different radio communications systems.

A selecting means which chooses either of said two or more radio communications systems according to application.

A means of communication which communicates with a radio communications system with said selected selecting means.

**Claim 2** Radio communication equipment, wherein said means of communication consists of two or more means of communication which receive each of two or more of said radio communications systems in the radio communication equipment according to claim 1.

**Claim 3** A wireless communication method identifying application and choosing either of said two or more radio communications systems according to application in a wireless communication method for using service of two or more different radio communications systems.

**Claim 4** A wireless communication method choosing either of two or more means of communication which receives each of two or more of said radio communications systems in the wireless communication method according to claim 1.

**Claim 5** A storage which memorized a program for the computer to operate as an identification device which identifies application, and a selecting means which chooses either of said two or more

radio communications systems according to application by computer so that a call was possible.

**Claim 6A** storage, wherein said selecting means chooses either of two or more means of communication which receives each of two or more of said radio communications systems.

**Claim 7**Radio communication equipment characterized by comprising the following with available service of two or more different radio communications systems.

A selecting means which chooses either of said two or more radio communications systems according to whether send data includes a picture.

A means of communication which communicates with a radio communications system with said selected selecting means.

**Claim 8A** wireless communication method choosing either of said two or more radio communications systems according to whether judge whether send data includes a picture in a wireless communication method for using service of two or more different radio communications systems, and send data includes a picture.

**Claim 9A** decision means a computer judges it to be whether send data includes a picture, A storage which memorized a program for operating as a selecting means which chooses either of said two or more radio communications systems according to whether send data includes a picture by computer so that a call was possible.

## Detailed Description of the Invention

### 0001

**Field of the Invention**This invention relates to radio communication equipment with available service of two or more radio communications systems.

### 0002

**Description of the Prior Art**The type which available service areas, such as cellular communication systems, such as a portable telephone or a car telephone, are large to the conventional radio communications system, and can communicate also in high speed movement to it, There is a type in which power consumption, such as a digital cordless method (PHS), is small, and communication with the many modes of the public/self-management is possible.

**0003**As each strong point and demerit, to a cellular communication system. strong point: -- a service area -- to the large demerit:tone-quality insufficiency which can be communicated in high speed movement, the use improper in an underground structure, power consumption size, and a low-speed-data communication digital cordless method. strong point: -- the communication fee low, an underground use good, a tone-quality clearance, power consumption smallness, and a high-speed-data-transmission demerit:service area -- there are a narrow communication-during high speed movement failure etc.

**0004**The user had chosen the terminal which suited the service to use in consideration of these strong points and demerit.

### 0005

**Problem(s) to be Solved by the Invention**However, in the above-mentioned conventional example, each radio mobile communication system of a cellular communication system or a digital cordless method has each strong point and fault as above-mentioned. That the terminal of new methods, such as W-CDMA and CDMA-ONE, will also be used from now on, and a user carries the terminal corresponding to each radio system according to a usage pattern makes it inconvenience sensed also for a user.

**0006**Then, in this invention, said two or more radio communications systems can be used, and it aims at providing the radio communication equipment which can choose the radio communications system based if possible on the user's usage pattern.

### 0007

**Means for Solving the Problem**In radio communication equipment with available service of two or more radio communications systems with which this invention is different, It has a selecting means which is interlocked with application and chooses either of said two or more radio communications systems, and a means of communication which communicates with a radio communications system with said selected selecting means.

### 0008

**Embodiment of the Invention**As an embodiment of the invention, as a cellular communication system hereafter A cell phone unit. (It is hereafter called PDC) The compound-die radio communication equipment (henceforth a moving terminal) which has both of a Personal Handyphone System (henceforth PHS) as wireless communication media as a digital cordless method again is explained.

**0009**Drawing 1 is a block diagram showing the composition of the moving terminal through PDC and PHS in this embodiment.

**0010**This moving terminal is provided with the following.

The main part 100 of a moving terminal.

The antenna 101, the receiver 113.

Transmitter 114.

Data communications terminal (DTE) 112.

**0011**And on the main part 100 of a moving terminal, it has the PDC wireless processing section 102 which performs the transmission and reception at the time of choosing PDC as a radio communications system, the PHS wireless processing section 103 which performs the transmission and reception at the time of choosing PHS, and the selector part 115 for choosing either 102 and 103.

**0012**The strange demodulation function which performs the abnormal conditions of send data, and the recovery of received data on the main part 100 of a moving terminal, It has the channel codec treating part 104 which performs processings, such as decomposition/assembly of a frame, error correction processing, scramble processing, unknown episode processing of voice data, etc., and the line switching treating part 105 which performs line switching processing of a sound, data, etc.

**0013**The voice signal processing section 106 which performs compression coding processing of voice data, and extension decryption on the main part 100 of a moving terminal, the control section 107 which controls each part, ROM108 which memorize program data, the data processing part 109 which performs data processing in the case of performing data communications, and the time check holding clock data -- it has the treating part 110 and RAM111 which memorize and hold various data.

**0014**ROM108 is a storage in which read-out **control section / 107 / which is a computer** is possible.

**0015**Drawing 2 is a key map showing the whole radio mobile communication system in this embodiment.

**0016**200 A-B expresses a moving terminal, the area where a PHS base station covers 201 A-C, and PHS base station 201 A-C covers 202 A-C, respectively is expressed, 203 expresses a PDC base station, and 204 expresses the area which PDC base station 203 covers.

**0017**The operation which chooses the radio communications system according to application is explained.

**0018**Drawing 3 is a table showing the alternative form for every application currently held to RAM111 of the moving terminal in this embodiment. Then, 500 is a table showing the radio communications system selective state classified by application, 501 is the area showing application classification, and 502 is the area showing the alternative form according to application.

**0019**Next, drawing 4 is a flow chart showing the program memorized by ROM108 used when the control section 107 of the moving terminal in this embodiment operates.

**0020**First, suppose that the waiting processing selection which determines which radio mobile communication system the moving terminal 200A chooses was started (S900).

**0021**The control section 107 of the moving terminal 200A determines a radio communications system with reference to the radio communications system selection table 500 classified by application which starts application (S901), and identifies the application classification under present starting (S902), next is shown in drawing 3 (S903).

**0022**If a selective state is PDC (S904), the control section 107 will make the selector 115 the PDC wireless processing section 102, will make operation start preparations of PDC (S905), and will perform after **a preparation completion** waiting processing (S908).

**0023**The control section 107 judges whether an alternative form is PHS if an alternative form is not PDC (S906), if it is PHS, it will make the selector 115 the PHS wireless processing section 103,

will make operation start preparations of PHS (S907), and will perform after **a preparation completion** waiting processing (S908).

**0024** Thus, for example, in accessing the Internet, it chooses PHS. In a telephone call, PDC is chosen.

**0025** In S902, S903, S904, and S905 at other embodiments the control section 107, It chooses PDC, in connecting a wireless circuit in the application which communicates text data, and in connecting a wireless circuit in the application which communicates image data, it chooses PHS.

**0026** That is, if the application started is the mail which communicates text data, the control section 107 will communicate with PDC base station 203 according to the protocol of PDS by the PDC wireless processing section 102 at the time of mail communication.

**0027** On the other hand, if the application started is the application which communicates the data containing image data, the control section 107 will communicate with PHS base station 201A according to the protocol of PHS by the PHS wireless processing section 103, when communicating the data containing image data.

**0028** In other embodiments, if the control section 107 judges whether send data includes the picture and includes the picture, it will choose PHS, and if it is text data which does not include a picture, it will choose PDC.

**0029** Thus, a moving terminal is effective in the ability of the user to perform optimal communication, without being conscious of the telephone call with a sound, the data communications by a bearer, etc. by choosing a communications system from two or more automatic radio mobile communication systems according to application.

**0030** Although PHS-PDC was used as wireless communication media, in radio multi media communication systems, such as DECT, CT2, PDC, IS-95, CDMA-one, and W-CDMA, this invention is applicable similarly.

#### **0031**

**Effect of the Invention** In the radio communication equipment in which service of two or more different radio communications systems is available according to this invention as explained above, Two or more strong points and demerits of a radio mobile communication system can be complemented to both sides by having a selecting means which is interlocked with application and chooses either of said two or more radio communications systems, and a means of communication which communicates with a radio communications system with said selected selecting means.

**Field of the Invention** This invention relates to radio communication equipment with available service of two or more radio communications systems.

**Description of the Prior Art** The type which available service areas, such as cellular communication systems, such as a portable telephone or a car telephone, are large to the conventional radio communications system, and can communicate also in high speed movement to it, There is a type in which power consumption, such as a digital cordless method (PHS), is small, and communication with the many modes of the public/self-management is possible.

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**0028**In other embodiments, if the control section 107 judges whether send data includes the picture and includes the picture, it will choose PHS, and if it is text data which does not include a picture, it will choose PDC.

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## Brief Description of the Drawings

**Drawing 1**It is a block diagram of the radio communication equipment in an embodiment of the

invention.

**Drawing 2**It is a key map of a radio communications system.

**Drawing 3**It is a figure of the table of the radio communications system according to application in an embodiment.

**Drawing 4**It is a flow chart figure in an embodiment of the invention.

**Description of Notations**

100 Compound-die radio communication equipment

102 PDC wireless processing section

103 PHS wireless processing section

115 Wireless processing section selector

201A-C PHS base station

203 PDC base station

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**Drawing 1**

For drawings please refer to the original document.

**Drawing 2**

For drawings please refer to the original document.

**Drawing 3**

For drawings please refer to the original document.

**Drawing 4**

For drawings please refer to the original document.

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